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ABSTRACT

Human capital contracts are "equity-like" instruments for financing higher education. Since repayment depends on earning and adjusts to student capital to pay, these contracts should be more attractive to students than traditional loans. By making transparent the relative economic value of certain fields of study or the value of degrees from competing institutions, human capital contracts can improve the efficiency of the higher education market. Under a human capital contract, students receive funding in exchange for a percentage of their income during a fixed time period. Such contracts are equity-like instruments because the investor's return depends on the student's earnings. Effects of these arrangements include less risk for students, transfer of risk to parties that can manage it better, increased information regarding the economic value of education, and increased competition in the higher education market. To ensure the development of human capital contracts for financing higher education, policymakers should assure investors that such contracts are fully enforceable and afford them the same legal protection that student loans receive. Human capital contracts should be acknowledged as securities so that investment funds will be allowed to hold them, and they should receive tax treatment similar to that given other means of student financing. (SM)

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Human Capital Contracts
"Equity-like" Instruments for Financing Higher Education

by Miguel Palacios

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Executive Summary

Human capital contracts are "equity-like" financial instruments used for financing higher education. These instruments are better suited than student loans to attracting the private capital needed to finance higher education. Further, since repayment depends on earnings and thus adjusts to the student's capacity to pay, human capital contracts should be more attractive to students than traditional student loans. Finally, by making transparent the relative economic value of certain fields of study or the value of degrees from competing institutions, human capital contracts would improve the efficiency of the higher education market as a whole.

Under a human capital contract, a student receives funding in exchange for a percentage of his or her income during a fixed period of time. Human capital contracts are equity-like instruments because the investor's return will depend on the earnings of the student, not on a predefined interest rate. The effects of these arrangements are, among others, less risk for the student, transfer of risk to a party that can manage it better, increased information regarding the economic value of education, and increased competition in the higher education market.

To ensure the development of human capital contracts as a viable alternative for financing higher education, policymakers should assure investors that such contracts are fully enforceable and afford them the same legal protection that student loans receive today. Human capital contracts should be acknowledged as securities so that investment funds will be allowed to hold them. Finally, human capital contracts should receive tax treatment similar to that given other means of student financing.

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The development of human capital contracts requires minimal, if any, resources from government and increases the efficiency of the education market.

Introduction

Human capital contracts are innovative financial instruments for the private financing of higher education. These instruments have the potential to increase the amount of funding available for students and reduce the cost of education financing. That would translate into more opportunities for students, particularly students from lower-income households, to pursue a higher education. The development of human capital contracts requires minimal, if any, resources from government and increases the efficiency of the education market. In the words of Milton Friedman, it promotes equality of opportunity and addresses the sources of income inequalities without "impeding competition, destroying incentive, and dealing with symptoms, as would result from outright redistribution of income, but by strengthening competition, making incentives effective, and eliminating the causes of inequality."[1]

Human capital contracts should be welcomed at a time when there is a need for new methods of financing higher education. With education costs rising steadily and a shortage of student aid, new instruments are needed to finance students who have the capability and desire to go to college but do not possess the needed resources.

This paper discusses the shortcomings of fixed-payment student loans and the reasons that "equity-like" instruments are better suited for students' needs. The paper describes human capital contracts, discusses their major advantages, and illustrates how they can develop. It also discusses the major challenges that must be overcome for human capital contracts to succeed. Finally, the paper describes some of the important issues associated with human capital contracts for policymakers and administrators of higher education.

Market Failure in the Financing of Education

There are many reasons for pursuing a higher education. The enjoyment of learning and the value of the college experience are good reasons in themselves. Also important are the economic benefits that education brings to students and society in general. Thus, education can be seen as an investment with expected returns. The investment is in human capital, and the returns are in the form of higher earning capacity. The term "human capital" conveys the concept that an individual's knowledge and skills are assets.[2]

The systematic measurement of the relationship between education and earnings has been studied for at least 65 years.[3] Today many studies show that education is an attractive investment for the individual.[4] Society also benefits, although the magnitude of these benefits is still a matter of debate.

The fact that education offers attractive returns on investment should create opportunities for those who possess the capital to finance the education of students. The traditional mechanism used for that purpose is student loans. However, the nature of student financing creates barriers that prevent the natural flow of private capital in the form of loans to this area. As a result, not enough capital is made available for students who need to finance their studies.

Barriers to student loan financing result from the uncertainty faced when investing in additional education and from the intangible nature of human capital. To better understand the nature of this uncertainty, consider the contrast between investing in education and investing in a tangible asset such as a house. Whereas a house is relatively easy to value, the value of a college education is far more uncertain. Some students fail to complete their studies, others' skills become obsolete, and many choose career paths with a low earning potential. The student might invest in a skill only to find out later that the skill is worthless or of little value. In the case of a house, however, leaving catastrophic events aside, the benefits provided by the house will not change in the foreseeable future and its value will fluctuate with the appraisal of land in the neighborhood, a

much milder fluctuating than that of earnings and employment.

An investor who finances a student faces the additional problem of not knowing the true intentions of the student. Whereas a house can be valued independent of the activities of the owner, the value of the investment in education will depend on the student. Because the student will always know more about his or her own intentions and abilities than anyone else, investors will always be at a disadvantage with respect to information about the student's future earning potential.

A second source of uncertainty stems from the illiquidity of the education investment. If a homeowner cannot continue making the mortgage payments, the owner has the option to sell the home. Moreover, the lender is able to hold the house as collateral for the loan so that if the owner refuses to sell it, the lender can take possession. By contrast, a student cannot sell himself or offer himself as collateral for an investment, fortunately.

The difficulty of valuing the investment and the illiquid nature of the asset make student loans very risky for lenders. Therefore, private-sector loan institutions have stayed away from financing education in the past. Unless these problems are addressed, involvement of private capital in funding higher education will remain marginal.

Addressing the Problems of Financing Education

Risky projects, however, still obtain financing in capital markets by offering the investor a share in the profits generated by the investment. The financial success in the event that the investment does well compensates the investor for the additional risk taken in the investment. Thus, an instrument that allows investors to share in the success of students, as well as in their failures, would be more appropriate than student loans for financing education. In 1955, Milton Friedman described broadly how such a system could work. In doing so, he laid the foundation for a different approach for financing higher education.[5]

Friedman's ideas had an important impact in the policy arena. Soon after he introduced them, academics and policymakers started envisioning how to implement such a system. Eventually, a hybrid between traditional loans and Friedman's proposal came in to being in the form of income-contingent loans, of which Yale's Tuition Postponement Program is the most commonly cited example.[6] Those programs, however, were truncated by the introduction of subsidized federal loans.

Subsidized federal loans became the popular means for financing higher education, and today are an important resource for most students. However, they are not the optimal solution since instead of addressing the problems described above, they transfer the risk of the investment to the taxpayer. Further, because government's resources are not unlimited and education costs are rising, the extra burden must increasingly be borne by the student.

Friedman's ideas should be reconsidered as a way to address increasing education costs and limited government resources. The following section describes how this idea can be implemented and the advantages it offers for students, investors, and the higher education market as a whole.

How Human Capital Contracts Work

The proposed solution attempts to create financial instruments that allow equity-like investments in higher education. The instrument would be a contract by which an individual obtains resources to finance his or her education by committing a percentage of his or her income for a predefined period of time after graduation. Such an instrument is referred to here as a human capital contract.[7] To understand better how a human capital contract would work, consider the following example:

The instrument would be a contract by which an individual obtains resources to finance his or her education by committing a percentage of his or her income for a predefined period of time after graduation.

John needs $10,000 to finance his last year of college. He has already exhausted the other resources typically available for students, such as federal student loans, and thus needs to find another source to meet his expenses. John approaches a human capital fund administrator and asks for $10,000. John's application is studied, and after considering such variables as the school he is attending, his field of study, and his grades, John is offered the $10,000 if he agrees to pay 4 percent of his income for 10 years after completing his studies. John receives the $10,000, completes his studies, and joins the labor force. For the next 10 years, he will pay 4 percent of his income to the human capital fund.[8]

The following features should be noted about the above contract. First, John might end up paying less or more than the $10,000 he received. As with equity investments, the return that investors obtain is uncertain. Second, the total amount that John pays will depend on his income, which is linked to his capacity to pay. If he does well, the investor does well; if he doesn't, the investor loses. Thus, John's interests are, for the most part, aligned with those of the investor. Third, the amount that John will have to "repay" each month will not be an immediate consideration when he is deciding what career path to choose or whether or not to change jobs. In other words, John will have greater financial independence than if he had a fixed obligation. The following discussion explains these benefits in more detail.

The nature of the contract protects the student against periods in which earnings are small or nonexistent. Further, it relieves the student from high payments if his or her career path is less profitable than planned.

A Convenient Instrument for Students and Investors

Human capital contracts are convenient for students and investors for at least four reasons: (1) they relieve the student from any uncertainty about being able to make fixed loan payments, (2) they virtually eliminate default due to financial distress, (3) they are means and needs blind, and (4) they give a subsidy to those who most need it during the repayment period.

Reduced Uncertainty for the Student. As discussed earlier, investing in higher education is risky. Students know that on average the investment is a sound one, but they also know the amount of their future income is highly uncertain. As a result, students who take debt to finance their education face the possibility of not being able to meet their fixed monthly payments to pay back their loans. With a human capital contract, that uncertainty is greatly reduced, because payments will depend on earnings. The nature of the contract protects the student against periods in which earnings are small or nonexistent. Further, it relieves the student from high payments if his or her career path is less profitable than planned.

The reduction in uncertainty for the student translates into greater uncertainty for the investor. But the investor is in a much better position than the student to diversify risk. Investors can invest in multiple human capital contracts, reducing the uncertainty of what they will receive.[9] High-income earners will end up covering the losses produced by low-income earners. Thus, investors enable students to pool a fraction of their future earnings with others' earnings, in the same way insurance companies do when they allow individuals to pool the risk insured with others who face similar risks.

Human Capital Contracts Virtually Eliminate Default due to Financial Distress. From an investor's point of view, the fact that payments adjust with income means fewer defaults. Defaults will not be eliminated completely, since some students will try to evade their payments even when they have the means to make them and others will be in financial distress due to other circumstances, but the difficulty of honoring fixed payments during low-income periods will be greatly reduced.

Human Capital Contracts Are Means and Needs Blind. Unlike human capital contracts, which depend on students' expected future

income, traditional loans depend on assets that can be offered as collateral. With traditional loans, those who do not have any assets to offer as collateral are at a disadvantage. Those are precisely the people who would benefit most from additional education. The availability of human capital contracts, on the other hand, depends on what the student is studying and where the student studies rather than the student's background.

Subsidy Given Only to Low-Income Earners. The difference between the value of financing received by the student and the value of the payments made by the student can be interpreted as a subsidy based on long-term need. Rather than giving a subsidy to everyone, as is the case with subsidized student loans, or to those who have need for financing *when enrolling in a higher education program*, a human capital contract ends up giving the subsidy *only to those who need it after making the investment in education*. As mentioned before, this subsidy ends up coming from high-income earners who pay more than the cost of their financing.[10]

Increased Efficiency of the Higher Education Market

In addition to being convenient instruments for students and investors, human capital contracts will have a positive impact on the higher education market. Let's define the price of a human capital contract as the percentage of income that a student agrees to pay back to the investor *per* dollar provided. Following the sample human capital contract described earlier, the price of John's human capital contract is .004 percent per dollar provided (4 percent of income divided by $10,000 provided).

The pricing of human capital contracts will be based on the investor's expectations of a student's future income during the repayment period. Those expectations will depend on the school that the student is attending, the student's field of study, and other factors considered relevant to the student's future earnings. Thus, by observing the price of these contracts, comparisons of earnings expectations will be possible in an easy, straightforward manner. Comparing expected earnings will give more information to prospective students, making more transparent the decision about what school to attend or what field to pursue.

More important, however, such comparisons will reveal information about the economic value of certain fields of study *compared to their cost*. For example, two students attending law school at two different universities might be offered human capital contracts at the same price, implying that investors value the future earning potential for both students equally. However, if both students were to finance all their expenses through human capital contracts, the student attending the more expensive school would have to commit a higher percentage of income. Therefore a student deciding which school to attend will have an economic incentive to attend the cheaper school. In another example, two students attending different schools might be offered human capital contracts with different prices but end up committing the same percentage of income to cover all expenses. This will be the case only if investors' expectations regarding future earnings are *proportional* to the total expenses that students incur. For instance, if human capital contracts for school A are twice as expensive as those for school B (which means that investors see twice as much potential earnings in school B), but school B is twice as expensive as school A, the percentage of income that students will have to commit in either case will be the same. In that case, the student has an incentive to attend the school *with the highest expected income* rather than the cheapest one.

This analysis also holds for different fields of study in the same school. In particular, the tuition fee that a student pays to a university or college does not often correspond to the costs of the field of study taken or to the expected future earnings. For example, courses that do not require special laboratories and equipment are probably cheaper than those that do need them. However, a student usual-

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ly pays the same for either type of course. The result is a subsidy from the student who enrolls in relatively cheap courses to the one who takes expensive courses. Human capital contracts would create pressure to apply the "true" cost to each particular field, since the price of these contracts for inexpensive fields of study relative to their future earnings will be higher than it would be if the costs were apportioned correctly.

Comparisons between the price of human capital contracts and education costs would improve the efficiency of the higher education market by making more transparent the economic benefits and costs of attending particular institutions. As discussed above, students would be attracted to schools with a favorable relationship between their expected benefits and costs and to schools that offer higher future earnings. The result would be more competition between schools, with the student benefiting from lower relative costs and the incentive to pursue higher future earning opportunities.

Comparisons between the price of human capital contracts and education costs would improve the efficiency of the higher education market.

Development of Human Capital Contracts

The introduction of human capital contracts could transform the way in which colleges and universities currently fund themselves and their financial aid offices. The following discussion goes beyond the execution of individual contracts to explore how human capital contracts could develop into the main funding source for higher education finance. The process can be broken down into three stages: (1) the creation of individual contracts, (2) the creation of funds, and (3) the securitization of the contracts.

In the first stage, as discussed above, an investor provides financing to a student in exchange for a percentage of income after graduation. But the process should not stop there. One of the rationales for human capital contracts is the transfer of part of the inherent risk of future earnings. During the first stage, part of the risk has been transferred to the investor. Investors will, in turn, take steps to manage their risk through diversification, which leads to the second stage: the creation of human capital funds.

Human capital funds would invest in large numbers of students, decreasing investors' exposure to the fluctuations in earnings of a single student. The revenue stream from a large number of students will fluctuate on a much narrower band than do individual earnings. As high-income earners compensate for low-income earners, the investor is protected through diversification.

Human capital funds can be set up to appeal to different types of investors. Some investors will be interested in certain fields of study, others in certain types of students, and perhaps others in certain schools. Some funds will be established on purely economic grounds, but others may be established on more altruistic grounds.

For example, the total percentage of income that students would have to commit for certain fields of study that are expensive relative to the graduates' earnings would be very high. Interested investors could set up a fund for these students at a "subsidized" level; students would still pay a percentage of their income, but their payments would not likely be enough to cover the cost of their education.

But the fund set up by such altruistic investors would be much *more effective* than would simply giving the money away in a scholarship. Its effectiveness derives from the difference in the number of students that can be financed with a human capital contract, versus the number of students that could be funded through scholarships. To make this point clear, assume that a person donates $10,000, which will pay tuition of $1,000 to 10 students. If the $10,000 were given to fund human capital contracts and each student paid back only $500, measured in present value, the $10,000 would finance 20 students ($10,000 divided by $500 "lost" per student). The money for the additional 10 students came from part of the earnings of the recipients of financial aid, without hurting their personal finances. Because recipi-

ents of scholarships do not have to contribute back in any way upon graduation, even when their earnings provide enough means to do so, donors give up a possible source of resources that could be used to finance other students.

One type of fund that might be of particular interest to universities is the alumni fund. Alumni tend to be loyal to their alma maters and are an important source of funding for their schools. By giving money to their schools, alumni are sharing their success with the institution. Alumni may be willing to increase their contributions if they can expect a return on their investment. Thus, human capital funds provide alumni relations offices with a new way of attracting capital.

Beyond fund creation comes a third stage in which the number of investors increases. This is achieved through asset securitization, through which investors can sell a portion of the proceeds of the fund to other investors and institutions. The securitization of a fund allows a person to have a portion of a fund, with the advantages of diversification, without having to invest the whole amount of money required to gain the advantages of diversification.

Securitization plays an important role in financial markets, since it facilitates investments by individuals in activities in which otherwise only financial institutions could participate. This in turn increases the funds available (by appealing to a wider public) and decreases the cost of capital (by skipping the financial intermediary). The advantage for students is obvious: a lower cost for financing their studies.

Having described the stages through which human capital contracts would evolve, I will now turn to the challenges, both philosophical and practical, that will have to be overcome before this instrument can be made widely available.

Challenges Facing Human Capital Contracts

Issues for the Student

The willingness of students to enter into these kinds of contracts will depend on what other options are available for financing their studies. Further, the effects of these contracts on the students have ethical implications that should be discussed.

Other Available Options. Yale discontinued its Tuition Postponement Program after the government introduced its federally guaranteed student loans. The extensive discussions about alternative student financing mechanisms that took place during the 1960s and 1970s came to a halt when less-expensive subsidized student loans became widely available. Although the last 25 years witnessed the introduction of a subsidized system that improved conditions for students, that system will not meet the demand for additional resources as costs continue to increase.

Ethical Implications of Human Capital Contracts. Some opponents of human capital contracts have likened the idea to partial slavery.[11] These claims are groundless as long as students are free to make their own career choices and employment decisions at all times. Technically, the student "sells" a percentage of his or her future income, but that is different from the student "selling" himself. The notion that selling one's income is slavery may stem from the institution of indentured servitude. However, the fundamental difference is that with slavery or indentured servitude the master has authority over what the slave or servant does. *The essential element is lack of free will, not ownership of earnings.* If we were to accept the thesis that ownership of a percentage of future earnings is slavery, we could all consider ourselves slaves of the tax-imposing state. Moreover, current student loan obligations can only be paid from future earnings, thus student loans also entitle the lender to a student's future earnings. The only difference between the loan obligation and the human capital contract obligation lies in the method of estimating what part of future earnings belongs to the party that provided financing to the student.[12]

A subtler problem arises from the fact that investors would offer unequal conditions to different schools, careers, and individuals. Should we be concerned if the terms offered to engineering and law students are

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more attractive than those offered to history and philosophy students? If it is in society's interest to have individuals pursue fields of study that do not typically yield high monetary rewards, it can be argued that human capital contracts could create incentives to act against what would appear to be society's larger interest.

Indeed, there are several professions in which public benefits can be substantially higher than private benefits. In economic terms, the difference between a private benefit and a public one is referred to as an *externality*. Economic theory teaches that the welfare of society is impacted by the underinvestment in activities that offer greater public benefits than private ones. By revealing the differences in private retruns from different fields of study, human capital contracts would make it easier to identify effective ways of dealing with those externalities.

Another concern is that certain groups, for example women or racial minorities, would be offered less favorable contracts, given that their earnings expectations are lower. Although such differential pricing will not necessarily take place,[13] market forces will tend to reflect these differentials in earnings expectations. However, human capital contracts would not be the *cause* of such earning differentials, they would simply reflect the expected earnings of different groups.

We might not like the information that a free-market-driven instrument like human capital contracts would offer us regarding the value of earnings for different careers and groups, but that is not a reason to reject the instrument. Rather, such information makes society's decisions more transparent and should be seen as an opportunity to improve society's decisionmaking.

Issues for Investors

The major area that concerns potential investors is the effectiveness of the legal framework in protecting their rights. The most important challenges from their perspective lie in enforcing the contract and accurately estimating a student's income upon graduation.

Concerns about enforceability of human capital contracts were what stopped Human Capital Resources, a company that first planned to implement human capital contracts in the United States during the 1990s, from continuing their project. According to HCR, there were two legal modifications required to make these contracts enforceable.[14]

HCR claimed that because certain states prohibit the assignment of future income, residents of those states could challenge the validity of the contract in state courts. Given that students commit part of their future income when they engage in a human capital contract, it is not certain what the court ruling would be. Thus, investors would face significant legal uncertainty when investing in human capital contracts.

HCR also claimed that human capital contracts require the same protection from bankruptcy laws that traditional student loan lenders enjoy. Students cannot disavow their obligations to student loan lenders, even under bankruptcy, for seven years after graduation. Giving the same protection to investors in human capital contracts would reduce the risk of recent graduates declaring themselves bankrupt to avoid their payments.

Such concerns are not universally accepted. MyRichUncle (to the author's knowledge the only company offering human capital contracts today) considered the legal risk low and proceeded to offer human capital contracts to students.[15] MyRichUncle manages a pool of funds that has financed students in several universities. This year their first "graduates" started repaying their obligations.

The issue of contract enforceability will only be determined with certainty when one of these contracts is challenged in court and a favorable ruling is obtained, or when human capital contracts are recognized in every state or at the federal level. From MyRichUncle's experience, it should be possible to determine in a few years whether or not the legal framework in most states protects the investor. Regardless of the outcome, however, legislation that makes these contracts clearly enforceable would lower the uncertainties faced by investors.

Assuming that contracts are enforceable, investors face two more important challenges. They will have to (1) accurately measure students' incomes and (2) deal with adverse selection.

Determining Individuals' Incomes. Students will have an incentive to hide and postpone earnings during the repayment period. To address this, investors will have to devise methods for determining a student's income accurately. The best protection will probably come from having access to the student's income tax returns. Still, this would not provide complete protection because there are several mechanisms that the student can use to postpone income. For example, stock options might be designed so that they can be exercised after the repayment period. Thus, investors will also want access to students' employment agreements. Also, the human capital contract should probably state that "noncash" sources of income will be considered as earnings for the purpose of the contract.

Adverse Selection. The most pervasive challenge that investors face is adverse selection. Adverse selection arises as a result of the asymmetry of informaiton between the student and the investor. Students who have information that would lead investors to place a higher estimated value on the student's future earnings would find the human capital contract expensive, and, conversely, students who have information that would lead investors to lower their expectations of the student's future earnings would find the contract cheap. Those who find the contract expensive will seek other sources of funds, and those who find it cheap will be very attracted to it. As a result, investors will end up with the "less-profitable" group of students.

To avoid the problems discussed above, investors must pay special attention to pricing each contract accurately, making use of as much information about the student as possible. If they succeed in doing this, the price offered will seem reasonable to each student, and potential high- and low-income earners will find human capital contracts equally attractive. As with the case of enforceability, MyRichUncle states that, thanks to their valuation model, they can price human capital contracts accurately for potential low- and high-income earners alike.[16] Their capacity to do so will be tested during the next few years.

The growth of human capital contracts will depend on the ability of those who design the instruments to accurately determine a student's potential income and the capacity to collect payments. The good news is that other industries have thrived in spite of similar challenges. Further, the more prevalent these contracts become, the easier it will be to design them, fueling an increase of available funds.

Implications for Policymakers and Higher Education Administrators

The advantages that human capital contracts offer, as well as the need to create new mechanisms for financing higher education, should motivate policymakers to ensure that such contracts can prosper. Policymakers can help by creating conditions that remove any legal uncertainties that investors might find. For instance, investors should receive at least the same protection that student loan lenders receive today. Protection comes from the recognition of the validity of the loan contract and from denying students the possibility to disavow their obligation if they file for bankruptcy. Because students pledge a percentage of their future income, creating a framework that recognizes the right of the investor to those earnings is extremely important.

Two other legal changes would increase the capital that investors will be willing to provide to finance students using human capital contracts. First, human capital contracts should be acknowledged as securities so that investment funds are allowed to hold them. Second, taxation of these instruments should be similar to the treatment given other student financing. Currently the interest paid on student loans is tax-deductible for individuals with incomes lower than $55,000 ($75,000 if filing jointly) a year.[17] If payments to human capital contracts are not, at least in part, tax-deductible, they will compete on uneven terms with student loans.

The advantages that human capital contracts offer, as well as the need to create new mechanisms for financing higher education, should motivate policymakers to ensure that such contracts can prosper.

Because human capital contracts would increase competition, they will presumably find resistance from those institutions that find shelter in the current less-than-perfect market conditions. At the same time, those institutions that are more efficient in imparting education will welcome human capital contracts. Thus, from the point of view of higher education administrators, human capital contracts can be seen as an opportunity and a threat. Although they represent an opportunity to increase funding, they will expose the true costs and economic benefits of particular schools. To increase funding, higher education institutions should take steps to design and create human capital funds, possibly targeted to alumni, parents, and other members of the institution's community. By doing so, they will be taking advantage of the opportunities that human capital contracts offer.

Conclusion

The advent of human capital contracts should be welcomed at a time when new ways of financing higher education are needed. Their introduction will benefit students through better financing conditions, lower overall costs, and increased competition in the higher education sector.

The popularity of these contracts will depend on the evolution of the legal framework in protecting investors. The role of policy in shaping this framework is thus of great importance for those students who would benefit from these contracts.

However, in spite of the challenges remaining, this alternative education funding instrument has already become a reality. MyRichUncle currently funds students using human capital contracts. Others plan to follow. For higher education administrators, this should translate into an opportunity to increase the funding available for their programs. Since the system already exists, they should try to benefit from it.

Human capital contracts should develop fully during the next few years. Once they are widely available, for both students and investors, the illiquid nature of investing in additional education will be greatly overcome, with great benefits going to those who need funding to continue their education. As a result, the whole higher education market will benefit from additional information, and students will be closer to the ideal of equality of opportunity. Every effort should be made to ensure that this dream becomes a reality.

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Notes

1. Milton Friedman, *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962), p. 107.

2. The concept that equates human skills and knowledge as a form of capital is not new. Adam Smith included it in his second book, *The Wealth of Nations*, when he listed "the acquired and useful abilities of all the inhabitants or members of society" as one of the components of fixed capital. See Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Book 2, Chapter 1, ed. R. H. Campell and A. S. Skinner (Indianapolis: Liberty Fund, 1981; 1776).

3. At least since Milton Friedman and Simon Kuznets, *Income from Independent Professional Practice* (Cambridge, Mass.: National Bureau of Economic Research, 1945).

4. The most comprehensive compilation of those studies is George Psacharopoulos, "Returns to Investments in Education: A Global Update," *World Development* 22, no. 9 (September 1994): 1325–43.

5. After mentioning the idea as a footnote in Friedman and Kuznets, Friedman explored it more fully in his 1955 paper "The Role of Government in Education," later reprinted in Friedman, *Capitalism and Freedom*.

6. During the 1960s, several proposals were discussed by Congress for creating a system for financing higher education. Most of them involved income-contingent loans and a tax that students would have to pay upon graduation. None of those ideas prospered, and eventually the federal government introduced the existing federally guaranteed student loans. Bruce Johnstone offers a broad description of several proposals in his book *New Patterns for College Lending: Income Contingent Loans* (New York: Columbia University Press, 1972). For a more detailed explanation of the relationship between income-contingent loans and human cap-

ital contracts, see author's paper: "Human Capital Contracts and Human Capital Options, Characteristics, Valuation and Implementation," Working Paper 0014, Darden Graduate School of Business Administration, Charlottesville, Va., 2001, www.darden.virginia.edu/batten/btr_papers.htm.

7. To my knowledge, the name "human capital contracts" and "human capital equity contracts" comes from Roy Chapman, CEO and founder of Human Capital Resources. See Randall Lane, "Colsobs," *Forbes*, November 4, 1996, p. 44. The structure of Chapman's instrument has some differences with human capital contracts as described in this document. In particular, he proposed to include a cap in the maximum amount that a student would pay. "Colsobs" was short for "Collateralized Students' Obligations."

8. This example typifies the nature of human capital contracts. Several factors will have to be considered at the moment of implementation. For instance, it is necessary to define what type of income will count (will an inheritance count as income?), and what will happen if John decides that he really doesn't want to join the workforce at all (for example, if he gets married and stays at home while his wife works). Those details in the design of the contract will not be addressed here.

9. Investors will benefit from diversification as long as students' future earnings are independent in some degree from each other. The value from diversification comes from obtaining the same average return on the investment, with a lower standard deviation. Harry Markowitz first rigorously described the principles of diversification in his paper "Portfolio Selection," *Journal of Finance* 7, no. 1, (March 1952): 77–91. Modern finance textbooks all explain the concept in detail. The reader is referred to Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance* 6th ed. (New York: McGraw Hill, 2000), chap. 8, for more information on the topic.

10. In more technical terms, human capital contracts satisfy a concept of dynamic equity, rather than one of *static equity*. Needs-based subsidies usually consider the conditions of the individual when requesting student aid without regard of the success or failure the individual achieves in his or her productive life. Static equity is a more limited concept than dynamic equity, since the fates of students evolve over time. For a more elaborate discussion of static equity and dynamic equity, see Oosterbeek, "Innovative Ways to Finance Education and Their Relation to Lifelong Learning," *Education Economics* 9, no. 3 (1998): 219–51.

11. Milton Friedman made the statement comparing selling a portion of future income to slavery while discussing his idea in *Capitalism and Freedom*. However, he considered condemnation of such contracts as irrational. See pp. 103–7.

12. The discussion can go much deeper on this fundamental point. It is pertinent to bring forward the 19th-century accusation against capitalism that stated that the worker was a slave (or at least, in Marx's terms, estranged) because he didn't own the fruits of his work. Alfred Marshall responded to this claim in his *Principles of Economics, an Introductory Volume*, 8th ed. (London: Macmillan, 1956), p. 466, by pointing out that the worker "sells his work, not himself." A similar statement could be made regarding human capital contracts: "the student sells part of his earnings, not himself." Going further, we should question contracts in which an individual agrees to work for a company in exchange for financing of education. In contrast to human capital contracts, this arrangement does limit the decisions that students can make regarding their careers.

13. For instance, MyRichUncle does not differentiate between men and women.

14. HCR lobbied Congress for a bill that contained four modifications to current laws: (1) validation of human capital contracts, (2) modification of bankruptcy laws, (3) clarification of tax treatment of human capital contracts, and (4) definition of human capital contracts as securities so that investment institutions can hold them. In my view, the first two points are the most crucial, as they enable the existence of human capital contracts and make them enforceable. The other two points, though very important, are not as determinant in the success of these contracts. They do, however, make them more attractive to investors and students.

15. MyRichUncle does not describe its financial product by this name but they can be credited with being the first firm to offer these contracts. More information about the firm can be found on their website, www.myrichuncle.com.

16. Telephone interview with Vishal Garg and Raza Khan, founders of MyRichUncle.com.

17. U.S. Code, Title 26, section 221.

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